

UNITED STATES
DEPARTMENT OF THE INTERIOR

DI-6

APPROVED DECEMBER 1941



1988 Summer Trip to MONTANA -
Wyoming

7/24
Left New Haven @ 6:20 by
Lim to La Guardia

Flew to Denver
- Drought conditions
evident in browning of
fields and thin cover

Denver to Billings
Fires in Wind River
Range & Absarokas.

Met by Kirk L.W. / News of
a dead battery & tire
problems.

Jason Hicks had to take off
to Alaska.

7/25 DAY in camp & in Red Lodge
reading Blazer & self
for field

7/26 Left for Melville Mont.
A.T. 10:30 arr abt 2:30



7/26

Hot & Clear

NW 1/4 Sec 23, T6N, R15E, Wheatland Co.,
Loc. 881 = KRJ 88141 mount

SIMPSON QUARRY of Krause,
In the Bear Fm.

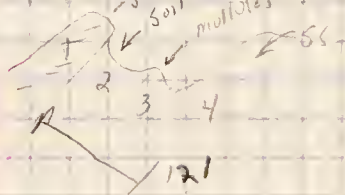
VERT DATE IS
PUECAN

SECTION CONSISTS OF TAN TO
GRY SS lenses & ledges
X bedded vfg.

w/ interbeds of sh. &

mudst.

NW → ss soil w/ roots in old & mud phos.



1. X bedded, fgs. ss.
2. Brown mudst. w/ slicks.
rooted, no bedding remains

3. mollusk layer, siliceous vfg
mudst. roots, sticks,
poor lenses

4. ss.



7/26/88

Loc. 881 (CONT.)

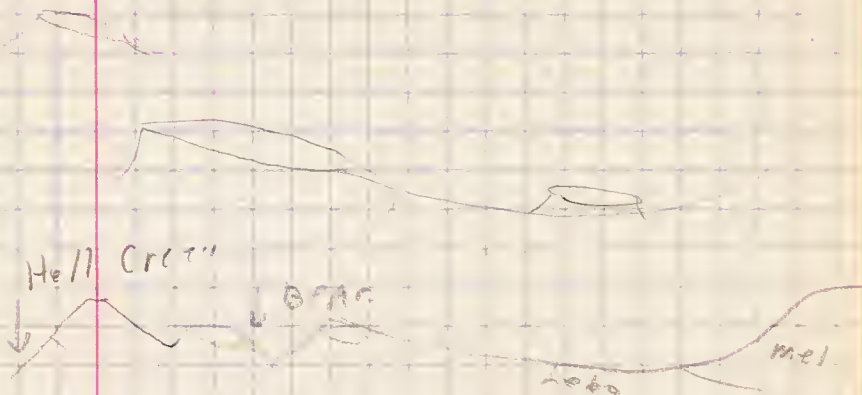
Leaves:

PLATANUS raynoldsii ~~very~~
40m

Cercid. gen? (base only)

INOCERA hesperia

TAXODIUM arifolium



Above The Quarry

S.E. & up section

Ledges become more

lenticular & make up

steadily less of the
section.

lebo fm. must form the
broad valley here

W. the tree covered
fluvial melville forming
the tree covered slopes
of the south valley wall.



7/26/88

881

Lebo is a swale
Hard to see its
character.

Melville - Light colored ss.

Lebo - Darker Olive Grey

BEAR. -

7/27

882

2abr ledges

Equisetum in tops of
distal splays

Grey mudstones.

Siderite in base of ss.

Some Fresh water ls.
in chs.

Gordon Nash at Cormex R.

- Knows loc. of Lebo
Plants



Cooney Branch 7/27/88

Bob + (Laurance) Cooney

- Lebo ss w / gravel at house

Platanus guellimalis
Tilia w Populus

Beac / Lebo

Bear ss are generally light in color

Lebo Olive grey shs.
ss. dark brownish.



7/27/88

Lebo Fm.
N. end of

Mudst. dominated seq.

DARK grey to brownish grey
weathering

Soil development

Reddish wh. siderite concretions
in layers.

lens of dirty tanish ss
2m. Thick w. clay
pebbles at base and
base.

wh. grey. x TAN.

looks just like
Lebo of B.H.B.



7/27/88

Loc 884 - KAJ 88143

- SW 1/4 Sec 2, T4N, R. 14E.
Sweetgrass Camp Melville Quad.

Mid. portion of a 0.8m thick
bedded ss., w
rare fresh water ls.
clams

PLATANUS guineensis

Alnus

Trochodendron araliifolium

Acer glaberrimum



885

Lebo

7/27/87

Sheep Feeder Loc.

Mcville, NW Quad

Upper Ton.

Mudstone / SS sequence

Siderite in mudst.

251

Foss
SS

SS w sid. Ben. ldy.
 ↑ Lateral accretion
 reddish

SS - Rusty Brownish

21

SS at top of Ruffs

31

mudst

151

slt's

fossil

↑ upward

V. SS in Siderite
 mudst in
 side.

Very good leaves

Plat. guillemie

Plat. Grayboldii

Cercid. gracilis

Ginkgo. Edmonstonei

Eucamania serrata

Viburnum antiquum

Glyptostrobus europaeus

Cornus nebrascensis



7/27/88

886

Lower Melville
Site

Lower Tiffany

Zingiberopsis
Metasequoia



7/28/88

Introduced Doug Nichols x
Janet Brown to
Fort Union Fm.

Scorpion Hollow
Lucasine.



7/29/88

887 Grimey gulch

Carb Shales immediately above
COAL of UNIT #6 of
Sec E627.

Pistia correolata ?



7/30/88

Mesa Verde /
Meeteetse ss

SW, SW Sec 2, T 8 S R, 23 E

Carbon Co. Mont

HATCHER PASS Quad

Julith River ss forming

large CUESTA

FLAT & planar x bedded

well ind.

w SKOLITHUS TUBES

Grey Shale above.

Next ss up w/ SKOLITHUS

Then lignite.

Looks like TREVORNI
w/ marine influence
in channels.

Meeteetse

Disconformity contact

med. to silty ss

ss often rusty brown
weathered.



7/31/88

Dinosaur Loc.

Loc 888

Meeteetse Fm.

25m above top of
Lewap

Ischium? in place

- w/ other large bones.

- IN A TAN SILTY MUDST.

207° From gate in section
fenced at end of
road

SW, NW, NW, NE Sec 15.

T 8S, R

1500 m N, 800 m E, SW cor.
Sec. 15 T 8S, R 23E,
CARBON CO, MONT.

Age of this may well be
EDMONTONIAN - LATEST CAMP.
EARLY MACSTRICHTIAN



8/1/84

KLM

W JARDON

889

Bridge Crest

NE, NE, Sec. 1

T5N, 4100 W, PARK CO Wyo

EIK Basin 7 1/2,

30 yds NW of Pumper

- 1st Marine tongue.

Trace fossil. JACKING
5-sided TRACES.

TABULAR SS. & SHALES
med grey in color

30' thick.

Capping a ridge
FLUVENT SS. on dip
slope.

2nd Marine looks thin
or non-existent



8/1/88

w Jason-Hicks

bottom of Scorpion Hollow
Section

Located as Stop 1 at 8/1/88

METEORIC
NE, SE, SCL 1, T57N, R10W
PAID CO., WY

- SKULLTHUS IN SAND AT
WENT TOP OF SECOND
MARINE TONGUE
- LARGE FAULT or DIKE
CROSS 1ST MARINE mbr.
Trending 025 at NW 75°
- IN THIS AREA WE HAVE
BOTH UPPER & LOWER MARINE
TONGUE BUT
FEWER TRACE FOSSILS,
LOWER DIVERSITY
IN 1ST Lenny Tongue



8/1/88

~~8/1/88~~

-UNIT MAY BE SOMEWHAT
THINNER TOP TRAC.
SS UNIT CAPPED BY
FLUVIAL SS.

2ND TONGUE

THINNER THAN AT
COTTONWOOD CREEK
NO MARINE MOLLUSKS
FOUND.

HOWEVER HAD SAME
SEPTARIAN FOWLS IN
LOWER PORTION.

TOP W/ SKULLS AND
BEFORE A STRONG
FLUVIAL SS UNIT IS
CLAY CLAST UP TO

10 CM

LAUREL - perhaps 75m.
← SEE 11/2/88

LINEP #2

MIDDLE SOIL

LINEP #1

LOWER SOIL



8/2/88

Loc.
8811

SW, NE, Sec 23, T54N, R102W
PARK Co. Wyo

ON MAPPED CONTACT

LANCE MEETEETSE

Looking at Meet.
Dip. $71^{\circ} \times 62^{\circ}$ E

KIM LOOKS. DARK grey w
prominent 2-3m thick
bands & thick
fluvial sand.

Walked w. down section to
CONTACT w. mesa Verde
TAN to lt. grey ss
ledges supporting
trees.
Dip. $72-80^{\circ}$ E.

MEETEETSE w COALS IN
2nd 1/4

Basal 1/4 is soils &
larger

3rd 1/4 Banded soils w
FLUVIAL lenses



8/2/88

8811 - (CONT.)

measured is Thin.

Meeteetse 1200 - 1400'

may be as much as 3,000'

8/2/88

8812 Meeteetse LAND FILL

Upper 35-40 m of
Meeteetse w/ well
developed soils & lignites
distinctly Terrestrial

Lance is Fluvial & very
sandy at least 100-200
m thick, mainly ss
lenses.

Tops of some ledges
to flat bedded
limonite impregnated



Loc 8812 (CONT'D.)

W TRACKS & FEEDING CARDS

AT base of 1ST LANCE ledge
found well developed
soil profile as follows

Soil Profile

A

1 in | 1 ft.

B

C 2 ft

SS, lt grey, leached
w roots
SS yellow w/
roots

ROOTS:

Some SS w/ vertical roots
penetrating into C horizon

PLANT locality ~~at~~ in ~~the~~
mudst above a SS.
about 20' above base of



Loc. 8612 (Covid)

Slope, on boulevard fence

Quereuxia angulata

ARAUCARIAN seeds

ELIATES

PLATANOID leaf



8813

W $\frac{1}{2}$ S $\frac{1}{2}$ Sec 33, T 49 N,
R 100 W, PARK Co, WY.
Meeteetse W. 7 $\frac{1}{2}$ Quad

Banded Meeteetse w
lignites & soils
looks a bit like the
Horseshoe Canyon Fm. in
Alberta

1.4 mi N. on Rte 120
from center of Meeteetse

Good Fossil Plant Prospect

W $\frac{1}{2}$ S $\frac{1}{2}$ Sec 33, T



S of Meeteetse on N7E 120

Mesa Verde-like ss occupies
much of basal 2/3's of
Fm.

ON Hot Springs Ca line
TO EAST of road
tabular bedded material
ss appears below
a fluvial ss holding
up a isograd to
EAST of road.



NE $\frac{1}{4}$ Sec. 2, T45N
R90W, Hot Springs
Co, Wyo

Eagle Pass $3\frac{1}{2}$

Loc. 6670 of Hewitt.
p. 24

2 2' COALS w/ interbedded
CLAYS & muds & sands
above a white unconsol
SS.

Adjacent to Hewitt
Sec. 2TP

✓ for plants.

Nothing except
ROOTS & fragments.

$$\begin{array}{r} 71.4 \\ 72.0 \\ \hline 6 \end{array}$$

8/5/88

SW 1/4, SE 1/4, Sec 33, T49N, R100W

8814

Lignite w Amber

From about middle
of Merteece Fm.

in Merteece West 7 1/2

60m W, 100m N of SE corner
of Sec 33, T49N, R100W

660m W, 145m N of SE corner of Sec 33

8815

SW, SE, Sec 33, T49N, R100W

PARK CO, WYO

Merteece w 7 1/2

71.7 ± 0.3

PLANT LOCALITY

in grey SLTST 3' below
a lignite 2/3 of way

to top of bluff

60' above base

Elatides
Vitis olivacea } Dom
Cedronia



8815 (contd)

Amesoneuron

Cercidiphyllum ellipticum
type

Entire leaf (Rhammites ?)

Equisetum

Anemia

Platanus guilleimae

Taxodiaceae

~~Can~~

UNIT is a laminated

~~SHALE~~

AT

CLAY

base

coarsening upward to

a ft. grey ss

at top above

plants.

Then a lignite



8/6/88

8816

NW $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$ Sec 17
T6S, R18E, Carbon, Co. Mont.

MCKAY RANCH Quad
LIVINGSTON Volcanics?
W-fos

D ELATIDES

D TAXODIUM foliage
cone

FA
PLATANOID

D CELASTRUM TAURINENSIS?

Ginkgo

Pseudophyllum

Pseudoguercus

PISITIA

Beds STRAI below these
have complex Ophiomorpha
burrows

These beds OTEROP AT
TOP of hill

8816b

NE $\frac{1}{4}$, SE $\frac{1}{4}$, SW $\frac{1}{4}$ Sec 8,
T6S, R18E, Carbon Co.

MONT.

TAXODIUM CONES



K17188 SW 1/4, SW 1/4, Sec 14, T6N, R15E,
Wheatland Co., MT.

8817

Ten O'clock Gate 7 1/2"

Bear / Hell Creek CONTACT

BEAR a dirty tanish
grey ss w vague
root & carbon films
on bedding plane

Hell Creek a greenish
grey mudst. &
interbedded ss.

30 - 40 m - below Bear/H C
CONTACT

Large, fulsome worm burrows
in mudstone.

HAVE EATEN all of the
organic matter

Dip 63° at 275° strike

~~8817b~~



88176

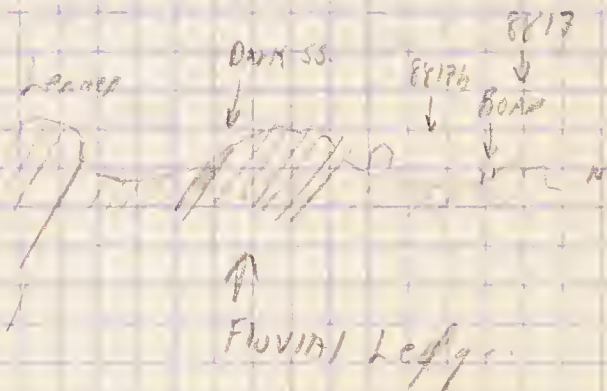
²²⁰
~~500~~ MN, 120m E SE Cor., Sec 14, T6N,
 R. 15E, Wheatland Co., MT.
 Hell Creek Ten o'clock Gate 7 1/2

90-150 m below

Base / NC Contact

Marine gastropods
 in a limestone lens.

8817C



Dark SS. at base of
 Fluvial Section

Rooted SS. in vicinity
 of Irons. Cont. Finne

C is 540m N, 130m E, SE Cor. Sec 14.



8/7/88

8817 d

660 m N, 300 m E, SW Cor. Sec 14, T6N,
R. 15E, Wheatland Co., MT.

Ten O'clock Gate 7 1/2

Lennep Fm

Rusty ss x sh.

Andesitic.

W

Fossil leaves. 60 m
from base of Fm

- All diatom

Possible Platanoid's



Ten O'clock Gate 7'12

8817e

60m S, 480m E of NW Cor, Sec. 14, T6N
R. 15E, Wheatland Co., MT.

Abt 100 m below

Top of Bearpaw sh.

Ammonites

Sphenodiscus

Baculites grandis

Inoceramus

Clam

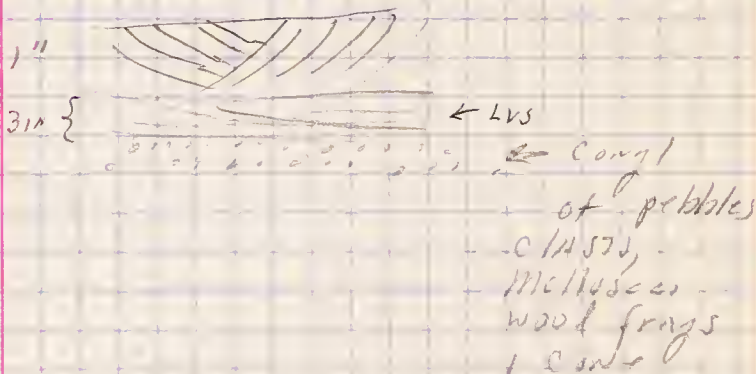


8818 380m S, 180m W, NE Cor, Sec 31,
T 6 N, R 15 E, Wheatland Co, MT.
Merville TW 7 1/2" Q

TORREJONIAN TO3 FLORA

AT BASE of a cross-
bedded ss lens.

SILTST interbedded 3" thick
AT BASE



Platanus nobilis
raynoldsii
+ seed heads of PLAT
Carya antiquorum
Metasequoia occidentalis
cone



8/8/89

9819

Upper Lebo Mbr F.U. Gp

DARK grey SHALE
w/

0 { Zingibropsis
metasequia

- Cercidiphyllum
- STAMP like leaf
BACK SWAMP flora

- Torrejonian?



8/8/88

8820

Five mile Hill n. of
Custer, Yellowstone Co., MONT.

olive greenish siltstone
Hell Creek Sequence
capped by yellow FT. Union
SS & mudst.

- 8820 d 10-16 cm, above coal
Coal #2 → ~~8820 c~~ 25 ft.
immediately below co.
Grey mudst 10 ft.
Coal #1 → 1st coal ~~8820 c~~



Sec. 8820

Cliff
forming
SS

Grey mudst.
comm. ph. frags.
iron bands.

8820c COAL #3
immediately below

42 cm
Carb sh. mudst.
5.4 m rooted
17. grey mudst
sh

8820d → 10-16 cm + carb

COAL #2

8820c

grey mudst
rooted at top
w limonite
bands.

8820b → COAL #1

SS
0.4 m

8820a 10 cm below coal #1

8820z

Sample

grey siltst
w limonite.

8820z

50 cm.

8820e immediately below
COAL #3

8820d 10 cm + COAL #2

8820c immediately below
COAL #2

8820b Top 2 cm COAL #1

8820a 10 cm - COAL #1

8820z 25 cm below to
top of grey siltst
unit



8820

8821

2.5 mi mileage from Blue Equipment
shed on e. side of
road to Locality

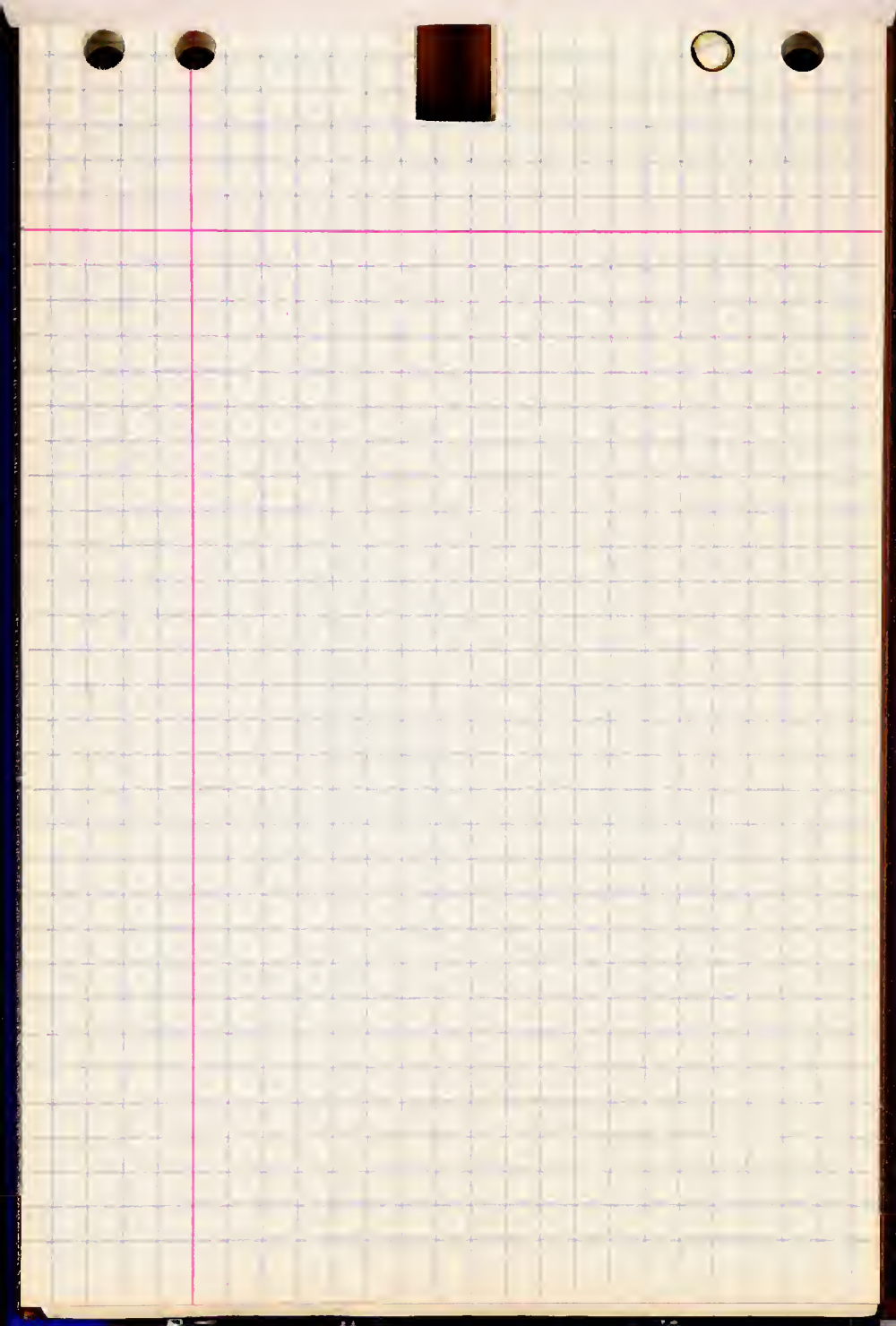
3.5 from end of BLACKTOP

4.1 to N BANK of YELLOWSTONE R.

5.0 CUSTER EXIT of ~~at~~ I-94

12.2 EAST of CUSTER, MONT
EXIT









IN STORAGE AT Red Lodge
8/88

- 200 Sample Bags
50 ~~50~~ NO 8 1 1/2" Screws
2 Screw sets #8 1 1/2"
Aluminum Foil
2 TAMPALINS
1 Web Belts
HAND AXE
Goose Neck for 5gal Jerry Can
2 Dico Cement
1 EPOXY
SALT TABLETS
SIN MOC STICK #15
KRYLOW
50 #10 1 1/2" X Screws
1 2LT CANTEEN
1 CANTEEN
200ft ~~Cable~~ Cord
1 Bottle Vodka
1 SPATULA
1 filter funnel
1 roll Aluminum foil
1 Gas goose neck
1 Griddle
1 HANDSTICK

